AMENDMENTS TO THE CLAIMS

Please amend Claims 1, 3-9 and 19 as follows:

1. (Currently Amended) A system for monitoring resource consumption by semiconductor fabrication processes, comprising:

at least one semiconductor process tool comprising at least one process-control device for controlling at least one process condition within the process tool;

at least one tool controller communicating with the at least one process-control device according to a process recipe for treating workpieces within the process tool; and

computer software residing in a memory of the tool controller, the computer software configured to sample values of a parameter from the at least one process-control device, wherein the sampled values reflect actual resource consumption of a consumable at the points in time that the values are sampled, and configured to sum the sampled values of the parameter taken over a period of time so as to obtain a value of a cumulative resource consumption of the consumable over the period of time and configured to store the values of the cumulative resource consumption.

2. (Original) The system of Claim 1, wherein the at least one process-control device includes at least one heating element and at least one mass flow controller.

3. (Currently Amended) The system of Claim 2, wherein the sampled values of the parameter comprise power output to the at least one heating element and gas flow through the at least one mass flow controller.

4. (Currently Amended) The system of Claim 1, wherein the sampled values of the parameter comprise inputs originating from the at least one process-control device and fed back into the at least one tool controller.

5. (Currently Amended) The system of Claim 4, wherein the sampled values of the parameter comprise outputs from the tool controller to the at least one process-control device.

6. (Currently Amended) The system of Claim 1, wherein the parameter**[[s are]]** is user-defined and the computer software comprises an editor configured to select the user-defined parameter**[[s]]**.

7. (Currently Amended) The system of Claim 6, wherein the user-defined parameter**[[s are]]** is a parameter reported to the process tool controller by the at least one process-control device.

8. (Currently Amended) The system of Claim 7, wherein the user-defined parameters include a parameter**[[s]]** selected from the group consisting of process gas flows, purge gas flows, electrical power consumption, and cooling water flows.

9. (Currently Amended) The system of Claim 7, wherein the values of the parameter**[[s]]** reported to the process tool controller **[[are]]**is sampled at a high frequency and the values of the parameter**[[s are]]** is summed at a low frequency.

10. (Original) The system of Claim 9, wherein a rate of the high-frequency sampling is user-controlled at the editor.

11. (Original) The system of Claim 9, wherein a frequency ratio of parameter value sampling to data summing is greater than about 100.

12. (Original) The system of Claim 11, wherein a frequency ratio of parameter value sampling to data summing is greater than about 1000.

13. (Original) The system of Claim 1, wherein the computer software comprises a report generator configured to generate resource consumption reports relating to user-selected ones of parameters being sampled for consumption of resources.

14. (Original) The system of Claim 13, wherein the report generator allows user selection of a report time span.

15. (Original) The system of Claim 14, wherein the report generator allows user selection of a report time resolution, wherein the report time resolution establishes a time interval represented by parameter values displayed in the report.

16. (Original) The system of Claim 13, wherein the resource consumption reports contain cumulative resource consumption values and process recipe details.

17. (Original) The system of Claim 13, wherein the resource consumption reports contain cumulative resource consumption values.

18. (Original) The system of Claim 1, wherein a user interface of the computer software is integrated into a user interface of the tool controller.

19. (Currently Amended) A method of determining resource consumption on a semiconductor process tool, the method comprising:

monitoring electronic inputs and outputs controlling a semiconductor process recipe; and

calculating cumulative resource consumption from the inputs and/or outputs, wherein calculating comprises computing a total resource consumption over a time interval,

wherein monitoring and calculating are performed on the semiconductor process tool.

20. (Original) The method of Claim 19, wherein the inputs and outputs include analog signals.

21. (Original) The method of Claim 20, wherein the inputs and outputs include digital signals.

22. (Original) The method of Claim 19, wherein calculating comprises summing resource consumption data derived from the inputs and outputs.

23. (Original) The method of Claim 19, wherein calculating comprises summing resource consumption data derived from the outputs.

24. (Original) The method of Claim 23, wherein calculating comprises applying a calibration factor to the outputs to arrive at the resource consumption data.

25. (Original) The method of Claim 19, wherein calculating comprises determining a total resource consumption for each of a plurality of successive time intervals.

26. (Original) The method of Claim 25, wherein the time intervals have a duration of about one hour or less.

27. (Original) The method of Claim 25, wherein monitoring comprises sampling the inputs and outputs multiple times per time interval.

28. (Original) The method of Claim 27, wherein monitoring comprises storing the sampled inputs and outputs in short-term memory and wherein calculating comprises storing the total resource consumption for each of the plurality of successive time intervals in long-term memory.

29. (Original) The method of Claim 28, wherein calculating comprises erasing the sampled inputs and outputs for each time interval after determining the total resource consumption for that time interval.

30. (Original) The method of Claim 19, further comprising generating a resource consumption report containing cumulative resource consumption values.